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Chemotropism of roots.—In a preliminary paper, PORODKO⁸ reports upon the chemotropism of the roots of *Lupinus albus* and *Helianthus annuus*. Roots 20–35 mm. long were placed in a lamella of agar varying in thickness from 6 to 60 mm., which separated the solution used from water. In all, 50 chemical substances were used, the concentration of which varied from 0.1 n to 0.001 n. As a rule, the roots did not remain straight, but bent against or with the diffusion stream. The range of concentration between maximum and minimum depended upon the substance used and the thickness of the agar lamella. Concentrations close to the maximum caused bending against the diffusion stream or positive response, which effect was observed with both electrolytes and non-electrolytes. PORODKO considers this a traumatropic response, due to the inhibition of growth on the up-stream side of the root. With lower concentrations, electrolytes and non-electrolytes affect the roots differently. The former cause great regularity as regards the direction of bending of the root, while the latter produce positive, negative, and intermediate responses. Acids, alkalies, and carbonates cause positive, and neutral salts negative bendings. The responses due to H and OH ions are considered to be traumatropic. The amount of negative response seems to depend upon the cation, being greater in the presence of one with a double charge than in the presence of one with a single charge. In many cases the responses are not all of one kind. Nevertheless, it is necessary to explain the cause of all. From his experiments, PORODKO concludes that positive but not negative responses can take place in decapitated roots, and that the latter, but not the former, show up as after-effects, although only on the clinostat. The two reactions are different in nature, the positive being passive and caused by the inhibitory effect of the greater concentration on the growing region on the up-stream side of the root, the negative being active and due to the chemotropic effect of the diffusion stream, which tends to accelerate the growth on the up-stream side. Hence, upon the growing region of a root of *Lupinus albus* subjected to the influence of the diffusion stream of a chemical substance, two antagonistic tendencies are at work, the direction of bending of the root being dependent upon the relative strengths of the two tendencies. Roots of *Helianthus annuus* act differently from those of *Lupinus albus*, in that they show only traumatropic response, but why this is true is not known.—R. CATLIN ROSE.

National Academy of Sciences.—At the annual session of 1910 two botanical papers were presented (April 19), which may be outlined as follows:

“The distribution of *Agave* in the West Indies,” by WILLIAM TRELEASE.—Three main types of *Agave* are recognized in the West Indies: one confined to the southwestern Cuban region, another to the Inaguas, and the third ranging through the entire archipelago. Subtypes of the latter are limited respectively to the Greater Antilles, the Bahamas, the Caribbees and the Leeward Islands, and the

⁸ PORODKO, THEODOR, Ueber den Chemotropismus der Wurzel. Ber. Deutsch. Bot. Gesell. 28:50–57. 1910.